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| <b>(21) International Application Number:</b> PCT/DK90/00164<br><b>(22) International Filing Date:</b> 26 June 1990 (26.06.90)<br><b>(30) Priority data:</b><br>3169/89 26 June 1989 (26.06.89) DK<br><b>(71) Applicant:</b> NOVO NORDISK A/S [DK/DK]; Novo Allé, DK-2880 Bagsvaerd (DK).<br><b>(72) Inventors:</b> BRANNER, Sven ; Ved Smedebakken 7A, DK-2800 Lyngby (DK). HASTRUP, Sven ; Frederiksborgvej 10, 3th, DK-2400 København N.V (DK). OLSEN, Ole, Hvilsted ; Bækkeskovvej 38, DK-2700 Brønshøj (DK). NØRSKOV-LAURITSEN, Leif ; Birkevej 10, Strøbyegede, DK-4600 Køge (DK). SIMONSEN, Merete ; Blegdamsvej 114, 4th, DK-2100 København Ø (DK). AAS-LYNG, Dorrit ; Fyrren 8, Svogerslev, DK-4000 Roskilde (DK). CASTELEIJN, Eric ; Palletierburg 105, NL-2907 CG Cappelle a/d IJssel (NL). EGMOND, Maarten, Robert ; De Ness 34, NL-3461 GD Linschoten (NL). HAV-ERKAMP, Johan ; De Kroeskarper 40, NL-2661 KL Bergschenhoek (NL). MARUGG, John, David ; Fivelingo 141, NL-3524 BL Utrecht (NL). MOOREN, Arnoldus, Theodorus, Anthonius ; Zwaluwenlaan 461, NL-3136 TP Vlaardingen (NL). |  | <b>(81) Designated States:</b> AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE*, DE (European patent)*, DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent).<br><br><b>Published</b><br><i>With international search report.</i> |  |
| <b>(54) Title:</b> A MUTATED SUBTILISIN PROTEASE   |  |  |  |
| <b>(57) Abstract</b><br><p>Enzymes produced by mutating the genes for a number of subtilisin proteases and expressing the mutated genes in suitable hosts are presented. The mutated enzymes have a changed net electrostatic charge compared to the parent protease at the same pH. The enzymes exhibit improved wash performance in comparison to their wild type parent enzymes. The enzymes are well-suited for use in detergent compositions.</p>   |  |  |  |

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